

IN THE CLAIMS

1. (Currently Amended) A method of controlling a process of fabricating integrated devices on a substrate, comprising:

measuring at least one pre-etch dimension and at least one post-etch dimension of at least one structure on the substrate; and

adjusting a process recipe of an etch process for etching the substrate and a process recipe of ~~at least one pre-etch process and/or~~ at least one post-etch process using the results of measuring the dimensions on the structures.

2. (Original) The method of claim 1 further comprising executing a multi-pass process wherein the substrate is processed more than once by an etch process and at least one pre-etch process and/or at least one post-etch process while forming the at least one structure.

3. (Original) The method of claim 1, wherein the measuring step further comprises:
detecting a failure of processing equipment performing the at least one pre-etch process and/or the at least one post-etch process.

4. (Original) The method of claim 1, wherein the structures are selected from a group consisting of a blanket layer, a featured layer, a film stack having at least one blanket layer and a film stack having at least one featured layer.

5. (Original) The method of claim 1, wherein the measuring step uses a non-destructive measuring technique.

6. (Original) The method of claim 1, wherein the measuring step uses at least one in-situ measuring tool that is a component of an etch reactor performing the etch process.

7. (Original) The method of claim 6, wherein the measuring step further comprises:
measuring thickness of the structures using the at least one in-situ measuring tool.
8. (Original) The method of claim 1, wherein the measuring step uses at least one ex-situ measuring tool that is external to an etch reactor performing the etch process.
9. (Currently Amended) The method of claim 8, wherein the measuring step further comprises:
measuring topographic dimensions and/or thickness of the structures using the at least one ex-situ ~~one~~ measuring tool.
10. (Currently Amended) The method of claim 9, wherein the at least one ex-situ ~~one~~ measuring tool and the etch reactor are modules of a processing system.
11. (Currently Amended) The method of claim 1, wherein the measuring step ~~processing equipment~~ is performed external to ~~[[the]]~~ a processing system utilized to perform the etch process.
12. (Original) The method of claim 1, wherein the adjusting step further comprises:
adjusting the process recipe of an etch process for etching at least one subsequent substrate.
13. (Currently Amended) The method of claim 53 ~~[[1]]~~, wherein the at least one pre-etch process is performed before measuring the pre-etch dimensions.
14. (Original) The method of claim 1, wherein the at least one post-etch process is performed after measuring the post-etch dimensions.

15. (Currently Amended) The method of claim 1, wherein the ~~at least one pre-etch process and/or the~~ at least one post-etch process is selected from a group consisting of a chemical mechanical polishing process, a deposition process, an etch process, an oxidation process, an annealing process and a lithographic process.
16. (Original) The method of claim 1, wherein the pre-etch measurements are taken in a device coupled to a processing system having a processing chamber in which the etch process is performed.
17. (Currently Amended) The method of claim 1, wherein the pre-etch measurements are taken in a device ~~remove~~ remote from a processing system having a processing chamber in which the etch process is performed ~~performed~~.
18. (Original) The method of claim 1, wherein the step of adjusting further comprises adjusting end point detection parameters.
19. (Original) The method of claim 1 wherein the at least one structure is a capacitive structure of a trench capacitor on a substrate.
20. (Original) The method of claim 19, wherein the capacitive structure comprises a polysilicon electrode layer.
21. (Original) The method of claim 20, wherein the process recipe of the etch process further comprises:
providing HBr and Cl₂ at a flow ratio HBr:Cl₂ in a range from 1:15 to 15:1.

22. (Withdrawn) A computer-readable medium containing software that when executed by a computer causes a semiconductor wafer processing system to control a process of fabricating integrated devices on a substrate using a method, comprising:

measuring at least one pre-etch dimension and at least one post-etch dimension of at least one structure on the substrate; and

adjusting a process recipe of an etch process for etching the substrate and a process recipe of at least one pre-etch process and/or at least one post-etch process using the results of measuring the dimensions on the structures.

23. (Withdrawn) The computer-readable medium of claim 22, wherein the measuring step further comprises:

detecting a failure of processing equipment performing the at least one pre-etch process and/or the at least one post-etch process.

24. (Withdrawn) The computer-readable medium of claim 22, wherein the structures are elements of the integrated devices selected from a group consisting of a blanket layer, a featured layer, a film stack having at least one blanket layer and a film stack having at least one featured layer.

25. (Withdrawn) The computer-readable medium of claim 22, wherein the measuring step uses at least one in-situ measuring tool that is a component of an etch reactor performing the etch process.

26. (Withdrawn) The computer-readable medium of claim 22, wherein the measuring step uses at least one ex-situ measuring tool that is external to an etch reactor performing the etch process.

27. (Withdrawn) The computer-readable medium of claim 26, wherein the at least ex-situ one measuring tool and the etch reactor are modules of a processing system.

28-35. (Cancelled)

36. (Original) A method of controlling a process of fabricating integrated devices on a substrate comprising:

executing a multi-pass process, wherein the substrate is processed more than once by an etch process and at least one pre-etch process and/or at least one post-etch process while forming at least one structure on the substrate, where each time the substrate is processed by the etch process is a pass;

during each pass, measuring at least one pre-etch dimension and at least one post-etch dimension of at least one structure on the substrate; and

adjusting a process recipe of the etch process for etching the substrate and a process recipe of at least one pre-etch process and/or at least one post etch process using the results of measuring the dimensions on the structures.

37. (Original) The method of claim 36, wherein the measuring step further comprises:

detecting a failure of processing equipment performing the at least one pre-etch process and/or the at least one post-etch process.

38. (Original) The method of claim 36, wherein the structures are selected from a group consisting of a blanket layer, a featured layer, a film stack having at least one blanket layer and a film stack having at least one featured layer.

39. (Original) The method of claim 36, wherein the measuring step uses a non-destructive measuring technique.

40. (Original) The method of claim 36, wherein the measuring step uses at least one in-situ measuring tool that is a component of an etch reactor performing the etch process.

41. (Original) The method of claim 40, wherein the measuring step further comprises:

measuring thickness of the structures using the at least one in-situ measuring tool.

42. (Original) The method of claim 36, wherein the measuring step uses at least one ex-situ measuring tool that is external to an etch reactor performing the etch process.

43. (Currently Amended) The method of claim 42, wherein the measuring step further comprises:

measuring topographic dimensions and/or thickness of the structures using the at least one ex-situ ~~one~~ measuring tool.

44. (Currently Amended) The method of claim 43, wherein the at least one ex-situ ~~one~~ measuring tool and the etch reactor are modules of a processing system.

45. (Currently Amended) The method of claim 36, wherein the measuring step ~~processing equipment~~ is performed external to ~~[[the]]~~ a processing system utilized to perform the etch process.

46. (Original) The method of claim 36, wherein the adjusting step further comprises:
adjusting the process recipe of an etch process for etching at least one subsequent substrate.

47. (Original) The method of claim 36, wherein the at least one pre-etch process is performed before measuring the pre-etch dimensions.

48. (Original) The method of claim 36, wherein the at least one post-etch process is performed after measuring the post-etch dimensions.

49. (Original) The method of claim 36, wherein the at least one pre-etch process and/or the at least one post-etch process is selected from a group consisting of a chemical mechanical polishing process, a deposition process, an etch process, an oxidation process, an annealing process and a lithographic process.

50. (Original) The method of claim 36, wherein the pre-etch measurements are taken in a device coupled to a processing system having a processing chamber in which the etch process is performed.

51. (Currently Amended) The method of claim 36, wherein the pre-etch measurements are taken in a device ~~remove~~ remote from a processing system having a processing chamber in which the etch process is ~~performed~~ performed.

52. (Original) The method of claim 36, wherein the step of adjusting further comprises adjusting end point detection parameters.

53. (New) The method of claim 1, further comprising:

adjusting a process recipe of at least one pre-etch process using the results of measuring the dimensions on the structures.